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IS : 10735-1983
ISO 2110-1980

(Reaffirmed 2003)

Indian Standard

25-PIN DTE/DCE INTERFACE CONNECTOR AND PIN ASSIGNMENTS FOR DATA COMMUNICATION

(ISO Title : Data Communication — 25-Pin DTE/DCE Interface Connector and Pin Assignments)

National Foreword

This Indian Standard which is identical with ISO 2110-1980 'Data Communications — 25-pin DTE/DCE interface connector and pin assignments' issued by the International Organization for Standardization (ISO), was adopted by the Indian Standards Institution on the recommendation of the Computers, Business Machines and Calculators Sectional Committee and approved by the Electronics and Telecommunication Division Council.

In the adopted standard certain terminology and conventions are not identical with those used in Indian Standards; attention is especially drawn to the following :

a) Comma (,) has been used as a decimal marker while in Indian Standards the current practice is to use a point (.) as the decimal marker.

b) Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

Cross References

International Standard	*Corresponding Indian Standard*
ISO 4902-1980 Data communication — 37-pin and 9-pin DTE/DCE interface connectors and pin assignments	IS : 10736-1983 37-pin and 9 pin DTE/DCE interface connectors and pin assignments for data communication (identical)
ISO 4903-1980 Data communication — 15-pin DTE/DCE interface connector and pin assignments	IS : 10737-1983 15-pin DTE/DCE interface connector and pin assignments for data communication (identical)
ISO 261 ISO general purpose metric screw threads — General plan	IS : 4218 ISO metric screw threads (technically equivalent)

Computers, Business Machines and Calculators Sectional Committee, LTDC 24 [Ref : Doc : LTDC 24 (612)]

Adopted 29 September 1983	© May 1984, ISI	Gr 6

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NEW DELHI 110002

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1 Scope and field of application

This International Standard specifies the 25-pin connector and the assignment of connector pin numbers at the interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) or automatic calling equipment (ACE). It is applicable to voice band modems, public data network (PND) facilities, telegraph signal converters, and automatic calling equipment where CCITT[1] Recommendations V.24 and V.28 are applicable.

In the case of the PDN attachment through the X.20 interface, the functions of the interchange circuits are in accordance with CCITT Recommendation X.24.

In the case of the V.20 type outstation interface, the electrical characteristics are in accordance with CCITT Recommendation V.31.

2 References

ISO 4902, *Data communication — 37-pin and 9-pin DTE/DCE interface connectors and pin assignments.*

ISO 4903, *Data communication — 15-pin DTE/DCE interface connector and pin assignments.*

CCITT Recommendation S.16, *Automatic calling and/or answering on the telex network.*

CCITT Recommendation V.10 (or X.26), *Electrical characteristics for unbalanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications.*

CCITT Recommendation V.11 (or X.27), *Electrical characteristics for balanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communication.*

CCITT Recommendation V.19, *Modems for parallel data transmission using telephone signalling frequencies.*

CCITT Recommendation V.20, *Parallel data transmission modems standardized for universal use in the general switched telephone network*

CCITT Recommendation V.21, 200-baud *modem standardized for use in the general switched telephone network.*

CCITT Recommendation V.23, 600/1 200-baud *modem standardized for use in the general switched telephone network.*

CCITT Recommendation V.24, *List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE).*

CCITT Recommendation V.25, *Automatic calling and/or answering equipment on the general switched telephone network, including disabling of echo suppressors on manually established calls.*

CCITT Recommendation V26, 2 400 bits *per second modem standardized for use on 4-wire leased telephone-type circuits.*

CCITT Recommendation V.26 bis, 2 400/1 200 bits *per second modem standardized for use in the general switched telephone network.*

CCITT Recommendation V.27, 4 800 bits *per second modem with manual equalizer standardized for use on leased telephone-type circuits.*

CCITT Recommendation V.27 bis, 4 800 bits *per second modem with automatic equalizer standardized for use on leased telephone-type circuits.*

CCITT Recommendation V.27 ter, 4 800/2 400 bits *per second modem standardized for use in the general switched telephone network.*

CCITT Recommendation V.28, *Electrical characteristics for unbalanced double-current interchange circuits.*

CCITT Recommendation V.29, 9 600 bits *per second modem standardized for use on leased telephone-type circuits.*

CCITT Recommendation V.31, *Electrical characteristics for single-current interchange circuits controlled by contact closure.*

CCITT Recommendation X.20, *Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for start-stop transmission services on public data networks (PDN).*

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[1] International Telegraph and Telephone Consultative Committee.

CCITT Recommendation X.20 bis, *V.21-compatible interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for start-stop transmission services on public data networks (PDN).*

CCITT Recommendation X.21 bis, *Use on public data networks (PDN) of data terminal equipment (DTE) which are designed for interfacing to synchronous V-series modems.*

CCITT Recommendation X.24, *List of definitions for interchange circuits between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) on public data networks (PDN).*

3 Connector

A 25-pin connector shall be provided for the DTE/DCE interface. A separate 25-pin connector shall be provided for the automatic calling equipment interface if this facility is used.

Figure 1 illustrates the DTE interface connector which has 25 male contacts and a female shell. Figure 2 illustrates the DCE interface connector which has 25 female contacts and a male shell. Contact numbering is specified in figures 1 and 2. Figures 3, 4 and 5 illustrate contact spacing and dimensions.

In view of the multiplicity of known arrangements currently in use for fastening these connectors together, no preferred version is documented herein. The user is advised to determine the method available in his area.

The specification for the connector in this International Standard is provided for mechanical compatibility only. It is also intended to be mechanically compatible with the detailed connector specification currently being developed by the IEC.

4 Assignment of pin numbers

The pin assignments are given in table 2.

The list of the interchange circuits is given in table 1. Their provision and use shall be in conformity with CCITT Recommendations, referred to in the heading of table 2.

Table 1 — List of interchange circuits

Circuit number	Description
102	Signal ground or common return
103	Transmitted data
104	Received data
105	Request to send
106	Ready for sending
107	Data set ready
108/1	Connect data set to line
108/2	Data terminal ready
109	Data channel received line signal detector
110	Data signal quality detector
111	Data signalling rate selector (DTE source)
113	Transmitter signal element timing (DTE source)
114	Transmitter signal element timing (DCE source)
115	Receiver signal element timing (DCE source)
116	Select standby
118	Transmitted backward channel data
119	Received backward channel data
120	Transmit backward channel line signal
121	Backward channel ready
122	Backward channel received line signal detector
124	Select frequency groups
125	Calling indicator
126	Select transmit frequency
129	Request to receive
130	Transmit backward tone
131	Received character timing
132	Return to non-data mode
140	Remote loopback for point to point circuits
141	Local loopback
142	Test indicator
191	Transmitted voice answer
192	Received voice answer
201	Signal ground or common return
202	Call request
203	Data line occupied
204	Distant station connected
205	Abandon call
206	Digit signal (2^0)
207	Digit signal (2^1)
208	Digit signal (2^2)
209	Digit signal (2^3)
210	Present next digit
211	Digit present
213	Power indication
G	Signal ground or common return
T	Transmit
R	Receive

Table 2 — Assigment of pin numbers

Pin number	Interchange circuit numbers and remarks											
	Voice band modems					Public data networks			Telegraph		Automatic calling	
	Asynchronous		Synchronous	Parallel								
	A	B	C	D	E	F	G	H	I	J	K	L
	V.21	V.23	V.26, V.26 bis V.27, V.27 bis V.27 ter, V.29	V.19, V.20 Instation	V.20 Outstation	X.20 bis	X.21 bis	X.20 8)	Telex	Other	Telephone V.25	Telex S.16
1	See note 1	See note 1	See note 1	See note 1	See note 1	See note 1	See note 1	See note 1	See note 1	See note 1	See note 1	See note 1
2	103	103	103	See note 5	192-A	103	103	T	103	103	211	211
3	104	104	104	A1 3)	A1 4)	104	104	R	104	104	205	205
4	105	105	105	A2 3)	A2 4)	F	105	F	N	N	202	202
5	106	106	106	A3 3)	A3 4)	106	106	F	106	106	210	210
6	107	107	107	A4 3)	B1 4)	107	107	F	107	107	213	213
7	102	102	102	131	B2 4)	102	102	G	102	102	201	201
8	109	109	109	109	B3 4)	109	109	F	109	109	F	F
9	N	N	N	C1 3)	C1 4)	N	N	N	N	N	N	N
10	N	N	N	C2 3)	C2 4)	N	N	N	N	N	N	N
11	126	N	N	C3 3)	C3 4)	F	N	N	N	N	F	F
12	F	122	122	C4 3)	192-B	F	F	N	F	F	F	F
13	F	121	121	B1 3)	See note 4	F	F	N	F	F	204	204
14	F	118	118	B2 3)	125-A	F	F	N	F	F	206	206
15	F	See note 2	114	B3 3)	125-B	F	114	N	F	F	207	207
16	F	119	119	B4 3)	105-A	F	F	N	F	F	208	208
17	F	See note 2	115	191-A	105-B	F	115	N	F	F	209	209
18	141	141	141	191-B	129-A	N	N	F	132	F	F	F
19	F	120	120	130	129-B	F	F	F	F	F	F	F
20	108*	108*	108*	105	119-A	108*	108*	F	108/2	108/2	F	F
21	140	140	140	125	119-B	N	N	F	F	F	F	F
22	125	125	125	108*	107-A	125	125	F	125	125	203	203
23	N	111	111	107	107-B	N	N	F	N	N	N	N
24	N	N	113 9)	102	108-A	N	F	F	N	N	N	N
25	142	142	142	124	108-B	N	142	F	F	F	F	F
Electrical characteristics	V.28 7)	V.28 7)	V.28 7)	V.28 6)	V.31 6)	V.28	V.28	V.28	V.28	V.28	V.28	V.28

Legend : N — Pin number permanently reserved for national use.
F — Pin number reserved for future international standardization and should not be used for national use.
* — CT 108/1 or CT 108/2.

NOTES

1 Pin 1 is assigned for connecting the shields between tandem sections of shielded interface cable. The shield may be connected either to protective ground or to signal ground at either the DTE or DCE or both in accordance with national regulations.

Signal ground may be further connected to protective ground in accordance with national safety regulations. Caution should be exercised to prevent establishment of ground loops carrying high currents.

2 Where signal element timing is provided in the DCE, pin 15 will be used for circuit 114, and pin 17 will be used for circuit 115.

3 Received data circuits 104 are designated A1 to A4, B1 to B4, and C1 to C4 corresponding to their relevant frequency.

4 Transmitted data circuits 103 are designated A1 to A3, B1 to B3, and C1 to C3 corresponding to their relevant frequency, and all use pin 13 as the common return according to V.31.

5 Pin 2 is reserved for national use. Where circuit 110 is provided in the DCE, it will use pin 2.

6 The electrical characteristics of circuits 191 and 192 are subject to specification within V.19 and V.20.

7 Alternative use of V.10 and V.11 electrical characteristics has been recognized by CCITT for V.21, V.23, V.26, V.26 *bis*, V.27, V.27 bis, V.27 ter, and V.29. The connectors and pin assignments associated with application of V.10 and V.11 to these interfaces are provided by ISO 4902.

8 The functions of the interchange circuits are in accordance with X.24. This column refers only to X.20 type DTE with V.28 electrical characteristics since it may not interconnect with an X.20/V.10 DCE.

9 In some countries pin 24 is allocated to another interchange circuit such as circuit 116 (select standby).

Dimensions in millimetres

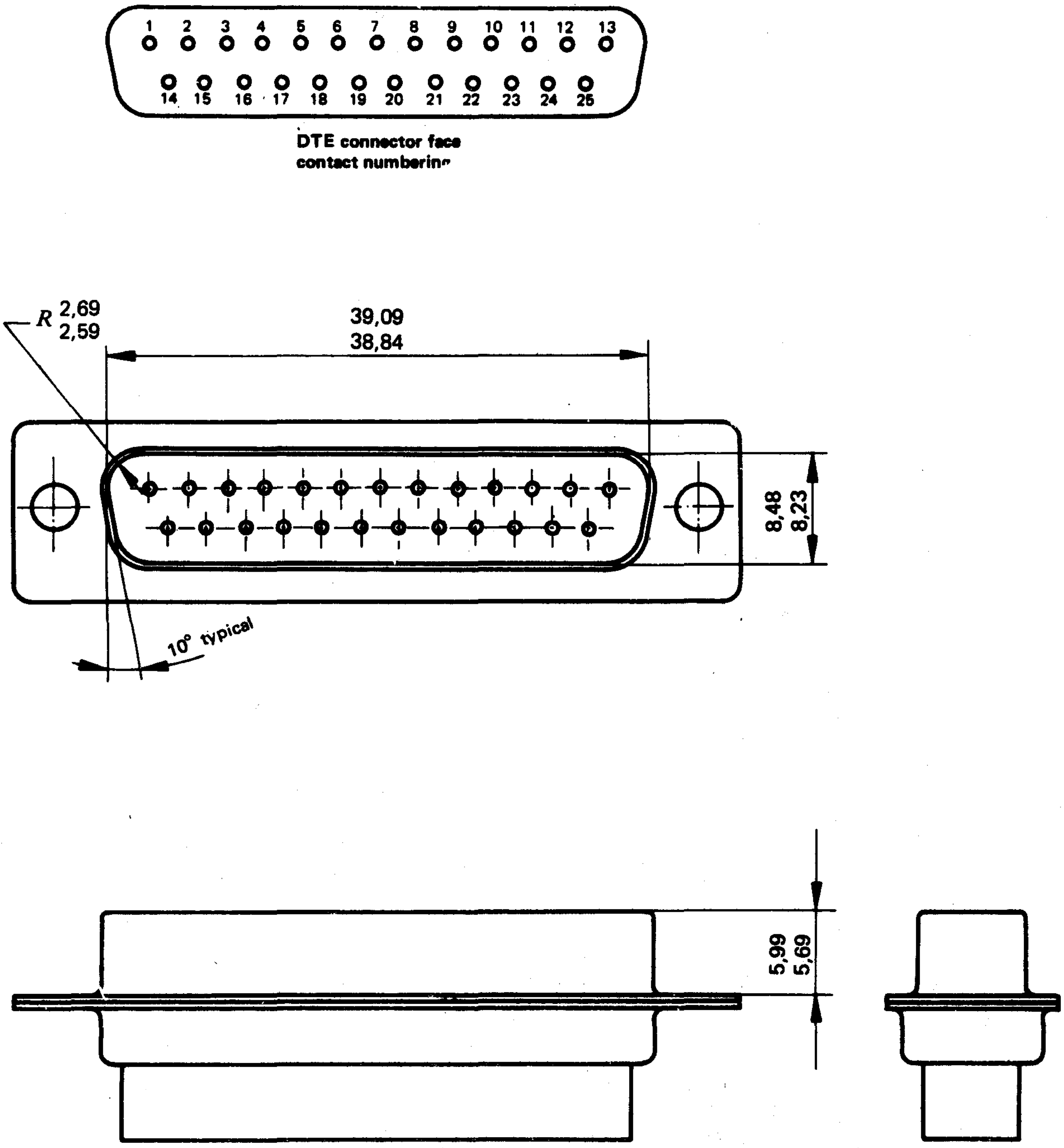
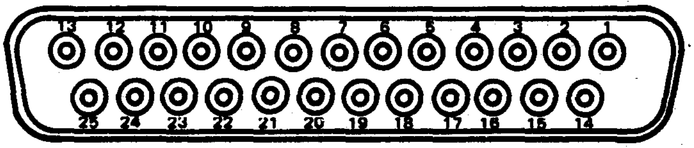


Figure 1 — DTE interface connector

Dimensions in millimetres



DCE connector face contact numbering

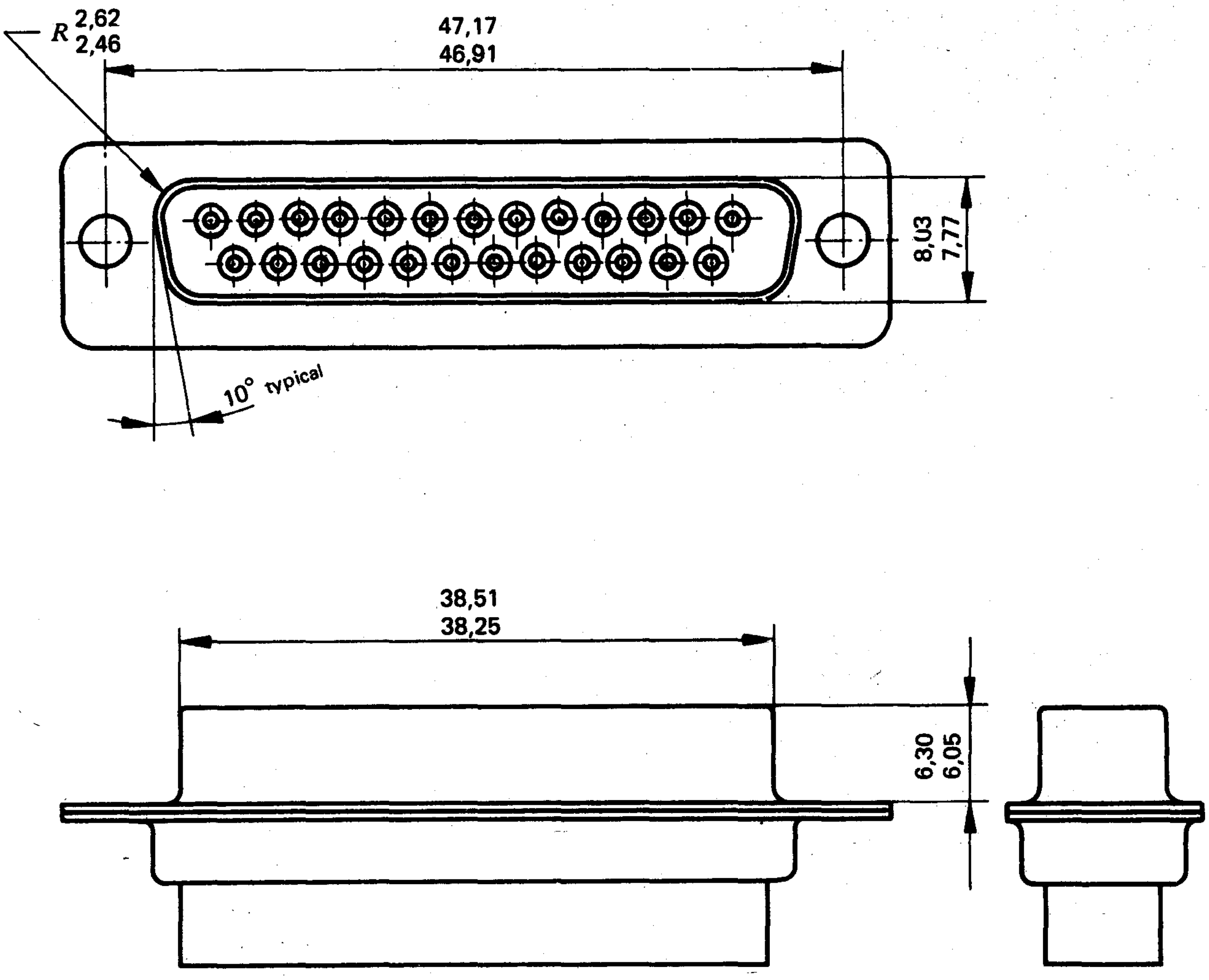


Figure 2 — DCE interface connector

Dimensions in millimetres

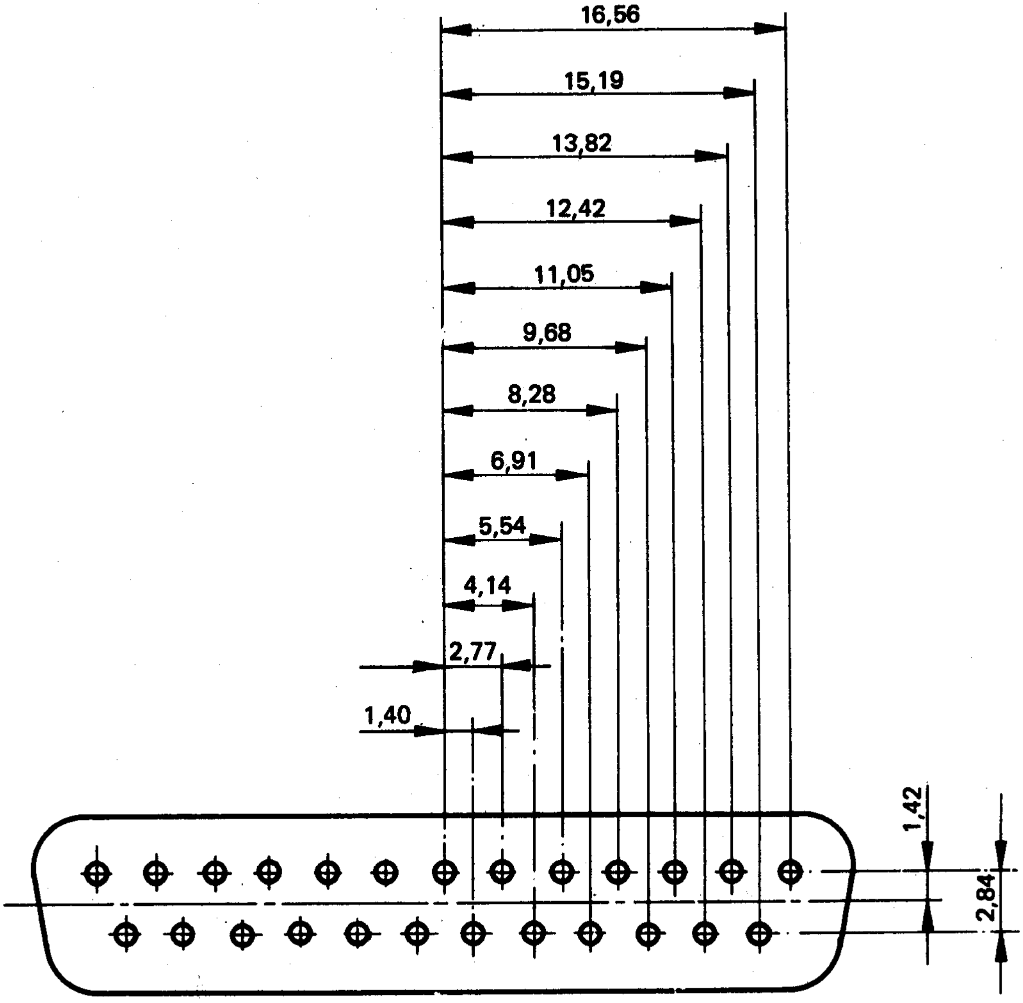


Figure 3 — Insert arrangement

Dimensions in millimetres

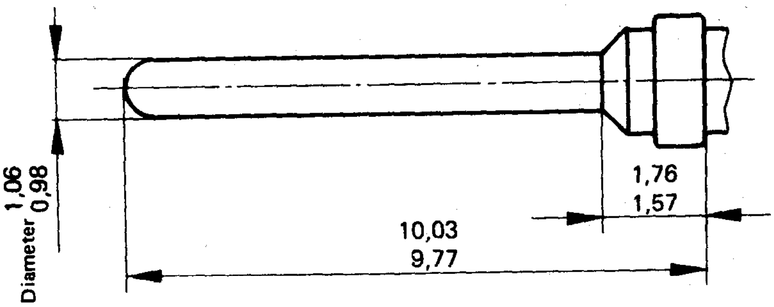
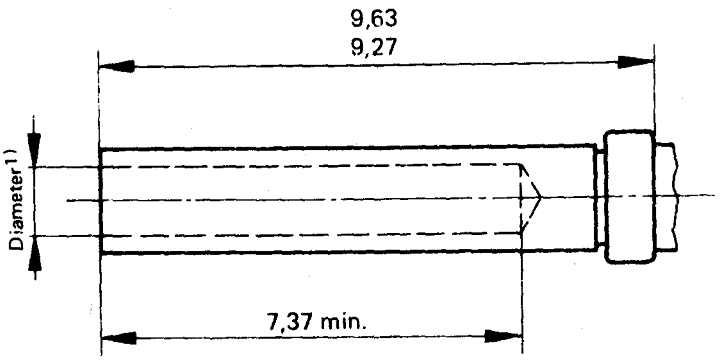


Figure 4 — Male contact

Dimensions in millimetres



1) When the pin is mated with the socket, sufficient force shall be applied by the socket to ensure proper electrical contact.

Figure 5 — Female contact

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